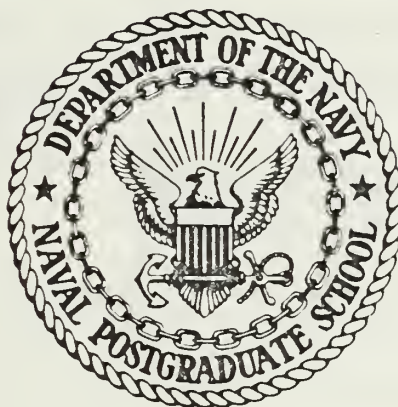


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THESIS

COMPUTER TRAINING FOR FINANCIAL MANAGEMENT
OFFICERS IN THE MARINE CORPS

by

Kathryn Elizabeth Crim

September 1986

Thesis Co-Advisors:

Kenneth J. Euske
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Computer Training for
Financial Management Officers
in the Marine Corps

by

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Captain, United States Marine Corps
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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION SYSTEMS

from the

NAVAL POSTGRADUATE SCHOOL
September 1986

ABSTRACT

This thesis examines the need for computer training of financial management officers in the Marine Corps. Currently, there is no computer requirement in the financial management training program. In order to determine if a need for computer training exists, a questionnaire was distributed at 28 Marine Corps installations to officers who possess disbursing, accounting, financial management, or financial management specialist military occupational specialties. Forty-nine percent of the officers responded. An evaluation of the computer education and training taken by these financial management officers to meet their computer related responsibilities is provided as well as the identification of microcomputers and software packages in use. The analysis indicates that a need for computer training exists and that formal courses of instruction should be implemented.

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I. INTRODUCTION

A. GENERAL

The effective use of limited resources is a problem which faces every business today. The financial management community in the Marine Corps is no exception, and is focusing efforts to maximize utilization of its manpower resources. One means to help ensure the maximum utilization of financial management personnel is to provide them with the education and training necessary to function efficiently and effectively.

Previous research has focused on the financial management education and training of fiscal personnel (Gombo, 1980; Read & McMahon, 1983). However, this research does not encompass all subjects necessary to cover daily responsibilities of financial management personnel. Financial management personnel not only face fiscal requirements, but also personnel, time management issues and computer related responsibilities.

This thesis will focus on only one area of the related responsibilities: computer issues. Specifically, this thesis is concerned with computer education and training necessary for financial management officers in the Marine Corps.

Gombo (1980) analyzed the adequacy of the education and training of financial management officers to fulfill their responsibilities. Gombo (1980) concluded: (1) that entry level financial management officers are not obtaining adequate budget and internal review training necessary to effectively fulfill their responsibilities. (2) "There is a need for more graduate level financial management education" (Gombo, 1980, p. 73). Read and McMahon (1983) continued this research to evaluate the need for entry level financial management instruction and the scope of the training required. Read and McMahon (1983) concluded: (1) there is a need for entry level financial management instruction. (2) The scope of the training depends on the desired proficiency level of financial management officers and whether the Marine Corps wants to use existing training programs provided by other services or establish its own course of instruction.

This research takes the efforts initiated by Gombo (1980) and Read and McMahon (1983) one step further to investigate computer education and training. Currently, there is no computer requirement in the financial management training program. However, with advancing computer technology and its subsequent integration into the financial management work environment, computer education and training may be necessary.

B. OBJECTIVES

The purpose of this research is to identify if there is a necessity for computer education and training of financial management officers in the Marine Corps. The target population is those officers who currently possess the MOS's 3402 (disbursing), 3406 (accounting), 3415 (financial management --budget and internal review) and 9644 (financial management specialist). This research did not include civilians who work in financial management billets. This research focused on three primary objectives: First, determine if there is a need for computer education and training for financial management officers in the Marine Corps; second, if the need for education and training does exist, by what method should it be accomplished and what courses of instruction are required to ensure a smooth transition into the work environment; and third, if the need does not exist, determine why.

C. METHOD

The primary data gathering instrument for this research was a questionnaire which requested information from members of the Marine Corps financial management community. A census vice a sample survey was used because the financial management community is small enough to solicit responses from the population instead of selected individuals. Based on responses to the questionnaire, data are presented on the respondents' use of computers, computer education or

training, statements on the need for computer education and training, and what courses of instruction should be provided. An analysis of the data is conducted and the results are provided.

D. THESIS ORGANIZATION

This thesis is divided into four chapters and two appendices. Chapter I is an introduction to the research, provides background material and describes the objectives of the research.

Chapter II provides information concerning the current MOS structure of the financial management community in the Marine Corps. Chapter II also provides background on the MOS consolidation and a description of the responsibilities of MOS 3404.

Chapter III discusses the method used for the questionnaire which is the basis for this research. It describes the development and implementation of the questionnaire and also identifies problem areas and recommendations for future questionnaires.

Chapter IV provides the analysis and conclusions derived from the data extracted from the questionnaire. Based on the conclusions, recommendations are made for future changes and further study.

Appendix A contains the questionnaire used as the basis for this research. The questionnaire solicits the respondents' background, use of computers and their computer

education and training. It also asks for the respondents' opinion on the need for computer education and training. If the respondents' opinion is favorable, they are asked to identify how the education and training should be accomplished and what courses should be taught. If the respondents' opinion is not favorable, they are asked to state why not.

Appendix B presents the data received from the questionnaire.

II. MOS STRUCTURE AND CONSOLIDATION

A. GENERAL

Occupational field 34 which includes auditing, finance and accounting, is composed of five military occupational specialties (MOS). Section B provides a history of the MOS consolidation. Section C provides a description of the current financial management MOS's, defines the new MOS 3404, and identifies the MOS's duties and responsibilities. The auditing MOS was excluded from the consolidation and this research because of its unique requirements.

B. HISTORY OF MOS CONSOLIDATION

The Fiscal Director of the Marine Corps established a working group in 1985 to review the 34 occupational field and consolidate the three subspecialties 3402, 3406 and 3415 into a single financial management officer, MOS 3404. MOS 9644, financial specialist, was not considered in the consolidation because it designates an individual who has graduated from the special education program or advance degree program with a degree in financial management.

The consolidation effort resulted from two problem areas in the present MOS structures: "(1) a lack of broadly trained and experienced officers for top financial management billets and (2) a structural imbalance within the various MOS's" (Headquarters Marine Corps [HQMC], 1985).

Additionally, the current MOS structure provides inadequate career progression and development. For example MOS 3402 is structured with insufficient field grade billets to allow company grade officers advancement within the MOS, and MOS 3415 is short in company grade billets which are necessary for officers to obtain the experience required for field grade positions (HQMC, 1985).

Through the consolidation, officers with MOS 3404 will be assigned in the three specialties, affording them the opportunity to obtain training in financial management, accounting and disbursing, to follow a career with a normal progression pattern, and to receive the foundation necessary to prepare them for their financial management responsibilities at the field grade level. (HQMC, 1985)

C. MOS STRUCTURE

During the conduct of this research, formal steps were taken and approved by the Fiscal Director of the Marine Corps to reorganize the formal MOS structure with an effective date scheduled for August 1986 (HQMC, 1986b). The author has used the terminology "current MOS structure" to reference that MOS structure prior to the consolidation and "new MOS structure" to reference the MOS structure after the consolidation.

1. Current MOS Structure

The current financial management MOS duties and responsibilities as stated in the MOS manual (USMC, 1985) are:

a. MOS 3402: Disbursing Officer

Advise the commander and staff on all matters concerning the technical aspects of disbursing and the regulations and directives that govern its performance. Supervise and direct the operations of a disbursing office. Interpret regulations and directives and formulate policies and procedures relative to disbursing in compliance with applicable laws and regulations. Coordinate disbursing matters with other activities of the command. Ascertain the validity of disbursements and/or collections of public funds and is held personally accountable for pecuniary and all disbursing acts and for the legal expenditure of all funds controlled. (USMC, 1985, p. 1-39)

b. MOS 3406: Financial Accounting Officer

Advise the commander on all matters pertaining to the technical aspects of financial accounting policies and procedures and exercise general supervision over all facets of financial accounting performed. Direct the preparation of periodic and interim financial reports for local use and for submission to higher headquarters. Ascertain the validity of commitment, obligation and expenditure documents to conform with directives of the Office of the Comptroller of the Navy. Assist in budget estimate preparation by proving the financial history of all funds for which financial accounting is performed. (USMC, 1985, p. 1-39)

c. MOS 3415: Financial Management Officer

Advise the commanding general/comptroller in all facets of financial management and identify the resource implications of general management practices. Assist in planning, monitoring, and evaluating programs for the improvement of manpower, material, and fund utilization. Develop cost analyses and review statistical data. Supervise preparation of accounting reports and provide technical assistance in financial matter to subordinate commands and staff sections. Perform internal review functions as a means of assessing organizational effectiveness. Assist in bureau-level fiscal matters in all major Marine Corps appropriations. (USMC, 1985, p. 1-40)

d. MOS 9644: Financial Management Specialist

Advises the commanding general/commander/comptroller in all facets of financial management relative to accounting, budgeting, disbursing, internal review, cost reduction, output, measurement, and economic analysis; applies advanced financial management theories, techniques and principles in day-to-day operations; supervises budget formulation and budget execution; conducts performance analysis; and plans programs for the improvement of management economy and efficiency through better utilization of available resources, i.e., manpower, materials, facilities, funds, and time. Serves as action officer/specialist/analyst for financial resource matters on a high level staff. (USMC, 1985, p. 1-76)

Throughout the remainder of this research, the author uses the numbers corresponding to a specific MOS rather than use the MOS description.

2. MOS 3404: Financial Management Officer

HQMC (1986a) approved the MOS consolidation and recommended and requested that USMC (1985) be updated to incorporate changes to the occupational field 34 job structure.

HQMC (1986b) concurred and the following change will be incorporated into the August 1986 revision of USMC (1985):

MOS 3404 DESCRIPTION

SUMMARY: Financial Management Officers formulate and supervise the execution of policies and procedures pertaining to financial management practices, to include disbursing and accounting for appropriated funds, in the shore establishment and the operating forces.

DUTIES AND TASKS:

A. Advise the commander and staff on all matters concerning the technical aspects of disbursing and the regulations and directives that govern its performance.

Supervise and direct the operations of a disbursing office. Interpret regulations and directives and formulate policies and procedures relative to disbursing in compliance with applicable laws and regulations. Coordinate disbursing matters with other activities of the command. Ascertain the validity of disbursements and/or collections of public funds. Is personally accountable for the legal expenditure of all funds.

B. Advise the commander on all matters pertaining to the technical aspects of financial accounting policies and procedures and exercise general supervision over all facets of financial accounting performed. Direct the preparation of periodic and interim financial reports for local use and for submission to higher headquarters. Ascertain the validity of commitment, obligation and expenditure documents to conform with directives of the Office of the Comptroller of the Navy. Assist in budget estimate preparation by providing the financial history of all funds for which financial accounting is performed.

C. Advise the commanding general/comptroller in all facets of financial management and identify the resource implications of general management practices. Assist in planning, monitoring, and evaluating programs for the improvement of manpower, material, and fund utilization. Develop cost analysis and review statistical data. Supervise preparation of accounting reports and provide technical assistance in financial matters to subordinate commands and staff sections. Perform internal review functions as a means of assessing organizational effectiveness. Assist in bureau-level fiscal matters in all major Marine Corps appropriations. (HQMC, 1986c)

D. SUMMARY

This chapter provided the reader with a description of the financial management MOS's in the Marine Corps. This information was provided to give the reader a basic understanding of the MOS's referred to in this research. A brief history of the consolidation effort was also provided to establish the background for this research.

III. QUESTIONNAIRE DESIGN

A. GENERAL

This chapter focuses on the method used in the development and execution of the questionnaire (Appendix A), the primary data gathering instrument used for this research. Section B discusses the development of the questionnaire. Section C presents the information to be obtained from the questionnaire. Section D discusses the method of distribution. Section E provides the author's observations of the respondents' replies to the questionnaire. Section F provides comments and recommendations pertaining to this and subsequent questionnaires.

B. DEVELOPMENT

The purpose of the questionnaire was threefold: (1) to determine if there is a need for computer education and training for financial management officers in the Marine Corps, (2) if the need for education and training exists, identify the type of formal education and training necessary to ensure a smooth transition into the work environment, and (3) if the need does not exist, determine why.

A sample questionnaire was developed and distributed to twelve USMC financial management officers in different grades, locations and jobs. This sample questionnaire served two purposes: (1) to find out how respondents would

answer the sample questionnaire, and (2) solicit recommendations for changes in the structure of the questionnaire prior to formal distribution (Schewe & Smith, 1980; Selltitz, Wrightsman & Cook, 1976). Ten questionnaires were returned.

Based on recommendations of the respondents and input from Naval Postgraduate School (NPS) faculty, questions 1, 2 were added to obtain information on hardware and software use and questions 4b, 6b, 6d and 7 were modified for clarification purposes. Statements were also added to clarify "personally sponsored education" in question 6 and amplify the requirements for questions 12 and 13.

C. QUESTIONNAIRE

The first part of the questionnaire in Appendix A solicits demographic information from the respondent, including rank, MOS, number of years in the Marine Corps, total number of years in a Marine Corps financial management billet, and number of months in current billet.

The second part of the questionnaire addresses the following questions:

Question 1 asks the respondent to identify the type of microcomputers that the individual personally uses at work.

Question 2 asks the respondent to list the software packages that the individual personally uses for spreadsheets, database, word processing, and graphics.

Question 3 asks the respondent to list all educational programs that led to a degree for the individual following high school.

Questions 4, 5, and 6 ask the respondent to identify the most recent types of formal education or training taken by the individual which included computer instruction. These questions also ask the respondent to list the subjects of courses taken. The respondent is asked to evaluate this education or training in relation to its ability to prepare the respondent for computer related responsibilities.

Question 7 solicits the respondent's opinion on the need for computer training for entry level financial management officers in the Marine Corps.

Question 8 asks those respondents who disagree with the need for computer training for financial management officers to discuss why the Marine Corps should not provide such formal computer training.

Question 9 asks those respondents who agree that financial management officers need formal computer training to identify how this training should be accomplished.

Question 10 asks the respondent to identify what topics or courses of instruction should be covered during training.

Questions 11, 12, and 13 ask the respondent if the courses of instruction should provide a general overview, cover specific topics or a combination of the two. Based on that response, the respondent is asked to identify

specific/general training based on the topics or courses of instruction that the respondent identified in question 10.

Question 14 provides the respondent an opportunity to provide comments or make recommendations on any aspect of computer training which was not previously addressed by the survey.

D. DISTRIBUTION

After all revisions were made to the questionnaire, the final draft was forwarded to Headquarters Marine Corps for formal distribution. The questionnaire was distributed by Headquarters Marine Corps under a cover letter signed by the Fiscal Director of the Marine Corps. The questionnaire was distributed to 28 major commands, with local reproduction and distribution directed to all officers who possess a primary or additional MOS of 3402, 3404, 3406, 3415, or 9644.

This method of distribution was chosen to improve the response rate over previous research. In one study Headquarters Marine Corps distributed 228 questionnaires for Read and McMahon (1983) directly to officers who possessed the 3415 or 9644 MOS or both and achieved a response rate of 46% (106 out of 228 questionnaires were returned). Comments by Read & McMahon (1983) stated that the survey was conducted during the annual budget preparation, which precluded respondents to their questionnaire from meeting both the demands for "their annual budget preparation . . . [and] . . . the deadline set for submission of the

questionnaire" (Read & McMahon, 1983, p. 56). As mentioned above, the questionnaires for this study were distributed to the 28 major commands, rather than directly to the individuals. The questionnaire was also mailed out two months later than in the previous study. To preclude conflict again with the annual budget submission, the questionnaire was distributed 1 April with a response date of 15 May. While these dates partly coincide with the budget preparation, they allow sufficient time for responses following the 30 April budget submission deadline.

E. OBSERVATIONS NOTED

Results of the questionnaire are discussed in Appendix B. However, several minor problem areas are discussed in this section. These problems are considered minor because no more than four percent of the respondents committed the errors and no consistent error patterns were noted.

Questions 3 through 6 focused on the respondents educational background and this portion of the questionnaire presented the most problems. Question 3 specifically requested the respondent to list all educational programs which lead to a degree for that individual, either before or after joining the Marine Corps. However, many respondents included the disbursing and financial management schools in question 3b. These schools provide formal training in their respective functional areas, but do not lead to a degree.

Question 4a generated some confusion in conjunction with follow-on questions 4b and 6. Those respondents who identified more than one type of formal education or training in 4a ran into a problem in question 4b. This question asked them to rate, on a scale from 1 to 5, whether the education or training they identified in question 4a prepared them for their computer related responsibilities. A problem resulted from grouping all the educational experiences identified in 4a together and not allowing the respondent to rate these individually. Two respondents did circle various responds in 4b and identified the subsequent corresponding courses. The answers to question 5 did not present any problems in coding the data.

Apparently question 6 confused some of the respondents. The question asked for education other than that listed in question 4, but many respondents listed the military-sponsored education they identified in question 4a, in 6a and 6b, and the personally-sponsored education in 6c and 6d.

One respondent commented on the fact that questions 4b, 6b and 6d assumed the respondents had computer related responsibilities when in fact they might not.

Question 7 was misinterpreted by some respondents. The respondents were to rate, on a scale of 1 to 5 (1 being strongly disagree, 3 being neither agree nor disagree and 5 being strongly agree), that rating which best described their opinion about the question. The respondents were also

directed to applicable follow-on questions based on their initial responses. If the respondent circled neither agree nor disagree, they were to go the last question which was for general comments. However, several respondents went on to answer questions 8-13. Question 8 was for only those respondents who disagreed on training and questions 9-13 were for those who agreed. Unfortunately none of the respondents who did this identified themselves, so the author could not contact them for clarification.

Two respondents disagreed about computer training and then answered questions 8-13 instead of marking 8 and going on to question 14. The author was able to contact these respondents. Both, though at different commands, stated they did not feel that 3404's needed training initially, but should go to their commands for a period of on-the-job training. They commented that after approximately six months, 3404's should then attend a training course and computer instruction should be included. However, they did agree that financial management officers should receive computer training and the results in Chapter IV reflect this.

Another minor problem was noted in question 2. Several respondents checked that they used various software packages, but did not identify them by name. Appendix B elaborates on this point.

F. COMMENTS AND RECOMMENDATIONS

The comments and recommendations provided here are for the questionnaire design and distribution per se and are not related to the conclusions and recommendations for further study addressed in Chapter IV.

The author has two recommendations: One, pick a target audience for research and give the questionnaire in a controlled environment. This method was used by Capt. Grubb (USMC) and LCDR Sharpe (USN) in their research on computer literacy in the Marine Corps. They went to Camp Pendleton and administered a questionnaire on computer literacy to members of six commands resident to Marine Corps Base Camp Pendleton. (Sharpe & Grubb, 1984)

While it might be impossible to go from command to command due to time and monetary constraints, meetings such as the Financial Management Conference could be utilized. While the Financial Management Conference would be an optimal occasion from a research standpoint, Financial Management Conferences meet bi-annually and may occur at an inappropriate time for research.

The reason for a controlled environment is twofold: (1) higher response rate--a "captive" audience is more likely to respond to the questionnaire. (2) The author of the questionnaire is available to clarify any, though hopefully few, "gray" areas. Providing clarification should help ensure complete questionnaires. For example, in answer to question

2, the respondent will understand that the author is looking for the name of the software packages used and not just checkmarks if a question is asked or uniquely noted.

Two, if the researcher wants to identify the educational background of the respondent, the author recommends that the educational portion of Appendix A be rewritten as follows:

Question 3: Do you have an undergraduate (2 or 4 (year) or graduate degree? YES (Please list) NO

Question 4: Please list in chronological order, beginning with the most recent, the last three (3) types of formal education or training that you received which included computer instruction. Include any work period which you consider was provided specifically for OJT. Based on the following scale, rate each type of training on how well it prepared you for your computer related responsibilities.

0	1	2	3	4	5
No	Strongly	Disagree	Neither	Agree	Strongly
Computer	Disagree		Agree Nor		Agree
Responsibilities			Disagree		

If you have not received any computer training, please write "NONE" and go to question _.

	Example	1	2	3
Type of Educational Experience (i.e., OJT, college, seminar, etc.)	Seminar			
Topic of Educational Experience (i.e., Financial Management)	Practical Comptroller Course			
Name of Institution (i.e., Syracuse Univ.)	Naval Postgraduate School			
Sponsor (i.e., DOD, USMC, Civilian Agency)	USMC			
Year Attended	1982			
Rating	3			

Question 6 should be deleted.

IV. ANALYSIS, CONCLUSIONS AND RECOMMENDATIONS

A. GENERAL

The primary focus of this research is to: (2) determine if there is a need for computer education and training for financial management officers in the Marine Corps; (2) if so, by what method should it be accomplished and what courses of instruction should be taught; and (3) if a need does not exist, determine why. This chapter addresses the three points as supported by the research findings. The analysis presented in this chapter is based on the raw data provided in Appendix B. For the reader's understanding of these data, a synopsis of the raw data is presented in Section B. Section C presents the analysis and conclusions derived from the questionnaire. Section D provides recommendations for future actions and Section E identifies topics for further study.

B. DATA

The raw data are presented in Appendix B. This section contains a synopsis of the raw data and the variables used in this research.

These data are concentrated on five major variables: the respondent's rank, MOS, computer experience, computer education and training, and the respondent's statements on computer education and training. Each is discussed below.

The officer ranks included in this research were warrant officers, first and second lieutenants, captains, majors, lieutenant colonels and colonels. Civilians were not included. This research focused on one major cross-section of Marines, those officers with specific financial management MOS's 3402, 3404, 3406, 3415, and 9644. The computer experience of those respondents using computers is divided into two areas: kind of computer and kind of software packages used for word processing, spreadsheets, database, and graphics.

The educational data provide the computer education and training received by the respondents. This education includes both undergraduate and graduate work, Practical Comptrollership Course, Professional Military Comptroller-ship Course, Computer Science School, schools operated by civilian corporations, and on-the-job training. The data also provide the respondents' statements as to how this education and training prepared them for their computer related responsibilities. The data also present the respondents' statements on why the Marine Corps should or should not provide computer education and training for financial management officers. Finally, the data show the kinds of computer education and training that should be provided, including subjects to be taught and whether the nature of the training is general or specific.

C. ANALYSIS AND CONCLUSIONS

Forty-nine percent of the questionnaires were returned. This response rate is considered adequate to project results for the entire target population (Kerlinger, 1973). As noted by Kerlinger, it is not uncommon to have response rates of less than 40% for mailed questionnaires (Kerlinger, 1973). Non-response is a problem encountered by investigators because the target population is not under their control (Moser & Kalton, 1974). When segments of this target population do not respond, a non-response bias arises (Schoner & Uhl, 1975). Investigators then have to determine if the non-respondents would answer similarly to those who did respond and project if the non-response bias has an effect on the results (Schewe & Smith, 1980; Moser & Kalton, 1974). A comparison of the demographic data of the 49% who returned the questionnaire and the 51% who did not, indicates no obvious bias with respect to rank, MOS, or geographic location. Therefore, the author finds no reason to conclude that this 49% is non-representative of the total population. The analysis and conclusions presented in this section address the three primary objectives of this research.

1. Objective One

The first objective is to determine if there is a need for computer education and training of financial management officers in the Marine Corps. This portion of

the analysis not only answers this objective but also looks at the respondent's use of computers and their computer education and training.

Based on results of the questionnaire, there is a need to provide financial management officers in the Marine Corps with computer education and training. Eight-nine percent of the respondents stated that a need for computer training exists, even though at the time only 61% of the respondents presently use micros. MOS's 3406, 3415 and 9644 had the highest percentages of respondents using computers. Respondents with MOS 3402 or individuals assigned to disbursing billets had a higher percentage of respondents that did not use microcomputers. In fact, of the individuals who do not use microcomputers, 69% are disbursing officers.

Sixty-eight percent of the respondents have received some computer education and training. Undergraduate courses (54%) are the dominant method of computer education, followed by courses offered by civilian corporations (24%) and Marine Corps command-sponsored programs (which also include the disbursing and supply schools) (23%). Only 19% of the respondents identified on-the-job training and 17% the practical comptrollership course (PCC) as methods for obtaining computer instruction.

Three education opportunities had high ratings that they did not prepare financial management officers for their computer related responsibilities. These are the PCC (69%),

undergraduate courses (57%), and Marine Corps command programs (62%). The main objective of the PCC, disbursing and supply school, is not to provide computer instruction and therefore it is understandable that they received poor ratings. The problem with undergraduate courses at civilian institutions is that the education does not provide Marine Corps-specific application.

It is of concern to note that only half the respondents who have received computer education stated it prepared them for their computer related responsibilities.

The results indicate a need for the Marine Corps to train its financial management officers to use computers. Sixty-one percent of respondents use microcomputers and 68% have some computer education. Even with the 68% who have received computer education, there are additional respondents (11%) who identified the need to expand the educational horizon to include computer training.

2. Objective Two

The second objective is to identify by what method should computer education and training be accomplished and what should be taught. The primary method of training should be a financial management course which includes, at a minimum, instruction in word processing, database, spreadsheets and graphics. Eight-two percent of the respondents identified a financial management course for entry level officers, followed by OJT (56%), outside education (22%) and

PCC (20%) and expert systems (6%). The author does not specifically address OJT and expert systems. OJT is a unique training program provided as necessary by individual command. Expert systems are addressed in Section D as a source for further study.

The number of courses covered depends on the length of the curriculum established. Based on the data in Appendix B, four basic courses should be provided: spreadsheets, database, graphics, and word processing, as well as an overview course. An overview course is included because many respondents are computer novices and do not know computer capabilities. Discussion with NPS faculty members revealed that many computer instructors erroneously assume that their students know such basics as how to turn on a computer and how to load a disk.

Respondents also requested courses in programming, hardware organization and structure, acquisition policies, and computer center operations.

3. Objective Three

The third objective is: if a need for computer education and training does not exist, determine why. Five percent of the target population stated that the Marine Corps should not provide computer training. Three reasons were given for not providing computer training to financial management officers: (1) OJT is sufficient, (2) it is not required, and (3) the training can be obtained prior to

joining the Marine Corps. Each of these points are discussed below.

These three reasons are valid arguments for not needing computer training. Each one has its own advantages and disadvantages. OJT has the greatest advantage in that training can be provided in the work environment using real-time applications. This affords the individual the opportunity to not only learn about computers, but also specifics relating to the individual's job. The disadvantage is the time spent training the individual about computers, that could be devoted to financial management responsibilities had the individual received computer instruction prior to reporting aboard. Also, with computer training, the individual will be exposed to new applications which can be introduced to the new command.

The second reason given is: computer training is not required for the job. If this statement is in fact true for the majority of financial management billets, the Marine Corps can save money by not establishing a requirement for computer training. The other point to consider is that although a current financial management job may not require computer usage, the same may not hold for future jobs. Sixty-one percent of the respondents use computers. The likelihood that an individual will be exposed to and use computers at some point in their career must be considered. With the consolidation of MOS's, an individual could not

only change duty stations but job specialities as well, for example going from a disbursing to budgeting billet. Along with this change may come the need to work with computers.

It is true that computer training can be obtained prior to joining the Marine Corps. However, can the Marine Corps depend on its financial management officers to obtain this training prior to entry into the Marine Corps? While computer training is becoming more prevalent in high schools and colleges nationwide, computer training is not required for entry into the Marine Corps. Therefore, can the Marine Corps expect officers to obtain computer training prior to entry or should the Marine Corps provide its officers with computer training specific to actual job requirements?

D. RECOMMENDATIONS

Based on the analysis and conclusions, the following recommendations are made.

First, include computer training in the financial management course. Currently, the financial accounting course at Camp Lejeune, North Carolina, is not required for financial management officers. The course is in the process of being restructured to support the MOS 3404 concept and a new training syllabus is being developed. The author proposes that inclusion of computer training in the new syllabus is critical to fully prepare financial management officers for their responsibilities.

No less than a week of computer instruction should be included. At a minimum, courses should be taught in spreadsheets, database, graphics, and word processing. The courses should include hands-on experience with the software packages to include instruction with existing programs used by various commands. This not only provides familiarization with the software's capabilities, but also provides "real-time" applications.

Lecture-only classroom courses for true beginners are not completely effective. This type of student needs actual contact with the product. Simply listening to a lecture usually is not enough to permit a student, upon completion of the course, to immediately and effectively use the product. (Farrar, 1986)

An overview course should also be included. This course should include an introduction to the computer, its capabilities and uses. The overview course should include an introduction to programming, hardware organization and structure, acquisition policies for computer hardware and software and computer center operations. The intent is not to turn financial management officers into programmers, but rather to familiarize them with what programs are available and their capabilities and limitations. The same is true for acquisition policies. Financial management officers do not type contracts, but they do need to know the policies in order to be able to handle needs for computer hardware and software. Financial management officers have to depend on a computer center for support. Therefore it is important that

they acquire a general understanding of their operations with respect to interfaces with the fiscal cycles.

Further, the author recommends standardization of the microcomputer equipment used throughout the financial management community and in the Camp Lejeune training facility. The author realizes procurement policies may dictate procedures governing the purchase of microcomputers for the school if this recommendation is implemented, but is it cost beneficial for the Marine Corps to train individuals on non-IBM-compatible equipment, when 63% of the financial management community is using IBM or IBM-compatible computers?

Second, train current financial management officers. There are several alternatives: (1) if recommendation one is instituted, the Marine Corps should send current financial management officers to Camp Lejeune for the computer portion of the training only. (2) Examine the feasibility of obtaining quotas to courses offered at the Computer Science School (CSS) in Quantico, Virginia. Can the CSS offer their automatic data processing orientation course at a designated time only to financial officers and focus the training to a fiscal orientation? This alternative should be considered now for second lieutenants graduating from The Basic School. Before leaving Quantico they could go to CSS prior to disbursing school. This alternative is not supported by some of the respondents who commented that the

second lieutenant should go to their duty station first and then get computer training after they had been on the job for approximately six months.

E. FURTHER STUDY

Although some of the following have been previously identified as recommendations, they have been included here because further study is needed. The items may be completed by personnel at Marine Corps commands or used as thesis topics by students at the Naval Postgraduate School.

First, determine the feasibility of sending financial management officers to courses taught at the CSS prior to leaving Quantico after graduating from The Basic School.

Second, determine the feasibility of sending current financial management officers to courses at the CSS to obtain computer training.

Third, include computer training in the revised financial management course.

Fourth, identify commands which maintain learning labs for use by financial personnel. Cherry Point has a learning lab established by their End Users Computing Group. The lab will be used by 2nd Marine Aircraft Wing and Marine Corps Air Station Cherry Point personnel. While the author does not think this will solve the financial management community's training void, these learning labs can be used to supplement the training received at the school at Camp Lejeune. The financial management community needs to know

where these learning labs are located so that training alternatives are not overlooked.

Fifth, investigate the use of expert systems for financial management training. Expert systems may be viable options for computer training and should be considered for further research and exploration. The financial management community does not now and in the future may not have the training facilities to educate our officers not only about computers, but budgeting, accounting and disbursing as well. Currently, there is no Marine Corps-sponsored training available for financial management officers in any curriculum. With an expert system, a new financial management officer could use the system to learn about budgeting, accounting, disbursing and internal review. Such training could fill the gaps when formal training is not available or when an individual is located in a remote location.

The Navy is currently developing a system at the Naval Personnel Research Facility in San Diego, California, to train personnel in Manpower. While the system is still in the testing phase, a similar system could be a valuable asset, especially when the Marine Corps is in a situation as they are presently.

F. SUMMARY

There is a definite need for computer training for financial management officers in the Marine Corps. Technology is such that jobs in the Marine Corps have direct

reliance on computers and as such the requirement to train our officers in their use is a must to accomplish our basic mission in an efficient and effective manner.

Means to accomplish this training vary, but the most dominant recommendation from the financial management community is to include computer training in an entry level financial management course. Courses of instruction also vary, but spreadsheets, database, graphics, and word processing should form the core emphasis areas for all computer training.

APPENDIX A

COMPUTER TRAINING QUESTIONNAIRE



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380-0001

IN REPLY REFER TO
FDB-149/jvg

1 APR 1986

From: Fiscal Director of the Marine Corps

Subj: COMPUTER TRAINING QUESTIONNAIRE

Encl: (1) Subject questionnaire

1. Captain K. E. Crim is a student in the Computer Systems Management curriculum at the Naval Postgraduate School, Monterey, Ca. She is currently working on her thesis which focuses on computer training requirements for entry level financial management officers in the Marine Corps. A primary source of information for her research is the subject questionnaire (Enclosure 1) which solicits your opinions and recommendations for the training of fiscal personnel in computer skills. Based on your responses, our needs for computer training will be evaluated to ensure that existing and proposed training programs provide the necessary instruction.

2. I am aware of the demands placed on your time, however, the importance of your opinions and recommendations cannot be over emphasized. Therefore, I request that the questionnaire be locally reproduced and distributed to and completed by all officers in your command/organization who currently possess a primary or additional 3402/3406/3415/3404/9644 MOS. Upon completion forward the forms to the Naval Postgraduate School (Attn: Captain K.E. Crim SMC 2073) Monterey, CA 93943, but not later than 15 MAY. Captain Crim, AUTOVON 878-2174, is the point of contact for the survey. Questions or problems should be addressed to her.

3. The results of this survey and Captain Crim's thesis will be provided to Fiscal Division and are expected to be an important contribution to the development of the new 3404 MOS training curriculum. Accordingly, a thorough and complete response is essential. Your cooperation and assistance in conducting this survey is appreciated.

A handwritten signature in dark ink, appearing to read "E. T. Comstock", is located below the third paragraph.

E. T. COMSTOCK
Fiscal Director of the Marine Corps

Distribution:
Comptroller, CG, MCDEC, Quantico
Comptroller, CG, FMFLANT
Comptroller, CG, MCAS, Cherry Point
Comptroller, CG, MCLB, Albany

Subj: COMPUTER TRAINING QUESTIONNAIRE

Distribution (cont'd):

Comptroller, CG, MCRD, Parris Island
Comptroller, CG, MCB, Camp Butler
Comptroller, CG, MCB, Camp Pendleton
Comptroller, MCRSC, Overland Park
Comptroller, FMFPAC
Comptroller, CG, 2nd MarDiv, Camp Lejeune
Comptroller, CG, 3rd FSSG, San Francisco
Comptroller, Camp Smith
Comptroller, CG, MCAS, El Toro
Comptroller, CG, MCLS, Barstow
Comptroller, CG, MCRD, San Diego
Comptroller, CG, MCB, Camp Lejeune
Comptroller, CG, MCAGCC, Twentynine Palms
Comptroller, CO, MCFC, Kansas City
Comptroller, CO, MCAS, Iwakuni
Comptroller, CG, 1st MarDiv, Camp Pendleton
Comptroller, CG, 2nd FSSG, Camp Lejeune
Comptroller, CG, 2nd MAW, Cherry Point
Comptroller, CG, 3rd MarDiv, San Francisco
Comptroller, CG, 3rd MAW, El Toro
Comptroller, CG, 4th MAW, New Orleans
Comptroller, CO, MB, Washington
Comptroller, CG, 1st MAW
Comptroller, CG, 1st FSSG

Copy to:

MC Rep, NPS, Monterey, CA

QUESTIONNAIRE SUMMARY

PURPOSE: To identify the necessity for computer education/training of entry level financial management officers in the Marine Corps.

BACKGROUND: The MOS structure for financial management officers in the Marine Corps was separated into three subspecialties: Disbursing (3402), Financial Accounting (3406) and Financial Management (3415). The Fiscal Director established a working group to review the 34 occupational field and consolidate the three subspecialties into a single financial management officer MOS (3404). This consolidation identified the need for a revised school structure and course syllabus. This questionnaire will be utilized to evaluate whether computer training is a necessary requirement for entry level financial management officers and determine if it is a necessary requirement for inclusion into the course curriculum.

OBJECTIVE: The objective of the questionnaire is to determine three points: first, does the Marine Corps need computer training for financial management officers; second, if there is a requirement, what type of formal training is necessary to ensure a smooth transition into the work environment and third if the requirement does not exist, why and where are 3404's receiving training prior to entry into the work force.

COMPUTER TRAINING QUESTIONNAIRE

1 2 3

Rank/Grade: _____ MOS: _____/_____/_____

Number of years in/with the Marine Corps: _____.

Total Number of years in a Marine Corps Financial
billet: _____.

Number of months in current billet: _____.

1. Please identify the type of microcomputers you
personally use at work:

_____ Zenith 120

_____ Zenith 150

_____ IBM PC

_____ IBM XT

_____ IBM AT

_____ Other _____

_____ Do not have use of a microcomputer (Go to question 3)

2. Please identify the software packages you personally use
for:

Spreadsheets _____

Database _____

Word Processing _____

Graphics _____

Other _____

3. Please list all educational programs that lead to a degree following high school (e.g., B.B.A. Finance):

a. Before joining the Marine Corps (with year of attainment):

b. After joining the Marine Corps (with year of attainment):

4. a. Please list in chronological order, beginning with the most recent, the last three (3) types of formal education/training that you received which included computer instruction. Include any work period which you consider was provided specifically for OJT. If you have not received any computer training, please annotate "NONE" and go to question 7.

	Example	1	2	3
Type of Educational Experience (i.e., OJT, college, seminar, etc.)	Seminar			
Topic of Educational Experience (i.e., Financial Management)	Practical Comptroller Course			
Name of Institution (i.e., Syracuse Univ.)	Naval Postgraduate School			
Sponsor (i.e., DOD, USMC, Civilian Agency)	USMC			
Year Attended	1982			

b. I think the education I identified in section a prepared me for my computer related responsibilities. Please circle the response which best describes your opinion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

5. Which of the following subjects were covered by the course(s) you took? (Check all appropriate answers)

_____ Introduction to Computers
_____ Computer Management
_____ Programming
_____ Computer Applications
_____ Computer Architecture
_____ Personal Computing
_____ Peripheral Devices
_____ Systems Development
_____ Other (Please specify) _____

6. If the three most recent educational experiences referred to in question 4 did not prepare you for the computer related responsibilities of your current or previous fiscal billet:

a. Did you take any earlier Military Sponsored education which prepared you for your computer related responsibilities? YES (Go to b) NO (Go to c)

b. I think my earlier Military Sponsored educational experience prepared me for my computer related responsibilities. Please circle the response which best describes your opinion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Please list with date (ex., Computer Science School, Quantico, 1983):

c. Did you take any Personally Sponsored education which prepared you for your computer related responsibilities? Please circle the response which best

describes your opinion. YES (Go to do) NO (Go to question 7)

(Personally Sponsored Education is that education received after duty hours and at your personal expense.)

d. I think my Personally Sponsored education prepared me for my computer related responsibilities. Please circle the response which best describes your opinion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Please list with date (ex., off-duty education, George Washington University, Washington, D.C., 1982):

7. I think that entry level Financial Management Officers in the Marine Corps need computer training. Please circle the response which best describes your opinion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

If you circled 1 or 2 go to question 8, 3 go to question 14, or 4 or 5 go to question 9.

8. Please check the answer(s) which describe in your opinion why the Marine Corps should not provide formal computer training to entry level Financial Management Officers. (Upon completion go to question 14)

_____ OJT is sufficient

_____ Civilian education provides better training

_____ Most Officers currently obtain computer training prior to entry into the Marine Corps

_____ Not required for the job

_____ Other (Please specify) _____

9. How should training for entry level 3404 officers be accomplished?

- ☐ OJT
- ☐ Outside Education
- ☐ Financial Management Course for entry level 3404's
- ☐ Practical Comptrollership Course
- ☐ Expert Systems
- ☐ Other (Please specify) _____

10. What topics or courses of instruction would you like to see 3404's obtain?

- ☐ Programming
- ☐ Word Processing
- ☐ Data Base Management
- ☐ Hardware Organization and Structure
- ☐ Management Information Systems
- ☐ Computer Center Operations
- ☐ Spread Sheets
- ☐ Graphics
- ☐ Acquisition Policies
- ☐ Other (Please specify) _____

If you have not checked any items, go to question 14.

11. If you think that 3404's should receive computer training, should the course of instruction provide a general overview of or cover specific topics? (e.g., Receive an overview in word processing packages to include the pros and cons of each or provide specific and detailed instruction in only one or two software packages.)

- ☐ Specific (go to question 12)
- ☐ General (go to question 13)

_____ Combination of specific and general (answer both questions 12 and 13)

For questions 12 and 13 be as specific as you can, identifying topics you feel are necessary to ensure sufficient course instruction. Provide as much detail as you feel is required to ensure that the topics you want covered are identified. If enough space is not provided, please use the back of the questionnaire.

12. Please identify specific training you would like to see 3404's obtain using topics checked in question 10. (e.g., word processing--Microsoft Word, spreadsheets--Lotus 123)
(Go to question 14)

13. Using topics checked in question 10, please list general or overview topics which should be included in the course curriculum.

14. Please provide any comments or recommendations that in your opinion are important for computer training which have not been previously addressed.

15. The following information, while not mandatory, is requested in the case any additional information is necessary or clarification required.

Name: _____ Autovon Number: _____

16. Any questions concerning the questionnaire should be directed to Captain K. E. Crim Autovon: 878-2174.

APPENDIX B
PRESENTATION OF DATA

A. GENERAL

Appendix B focuses on the results of the questionnaire distributed to financial management officers at 28 Marine Corps commands. The Occupational Field 34 Analysis Report (OFAR) generated by Headquarters Marine Corps provides the number of financial management officers at each command. Based on the 16 January 1986 report, the questionnaire population as shown in Table I was 323 of which 158 responses (49%) were returned.

Depending on the accuracy of the OFAR and in fact the questionnaire was distributed to all personnel with MOS's 3402, 3404, 3406, 3415, and 9644, the following data are presented.

Table I shows the questionnaire was sent to 35 warrant officers, 100 first and second lieutenants, 106 captains, 45 majors, 18 lieutenant colonels and 19 colonels. Based on the responses identified in Table II, this corresponds to a 43%, 50%, 43%, 56%, 100%, and 21% response rate, respectively. Looking at the questionnaire distribution by military occupational specialty (MOS), 199 3402's, 22 3406's, 87 3415's, and 15 9644's received the questionnaire. This

TABLE I
QUESTIONNAIRE POPULATION
FINANCIAL MANAGEMENT MOS VERSUS RANK

MOS	W1-W4	O1/O2	O3	O4	O5	O6	Total
3402	24	86	61	17	7	4	199
3406	11	4	5	2			22
3415		10	40	26	10	1	87
9644					1	14	15
Total	35	100	106	45	18	19	323

TABLE II

QUESTIONNAIRE RESPONDENTS
MOS VERSUS RANK

PRIMARY/ADDITIONAL MOS	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
3402/Other	11	31	20	5	2		69
3402/Other FM			1		1		2
3404/Other		5					5
3406/Other	4		1	2			7
3406/Other FM		2	1		1		4
3415/Other		8	11	6	8		33
3415/Other FM		2	10	6	3	2	23
Other/3402		1	1		1		3
Other/9644			1	5	2	2	10
Other/Other		1		1			2
TOTAL	15	50	46	25	18	4	158

corresponds to a 37%, 50%, 64% and 66% response rate respectively.

The response rate was disappointing to the author as it was only a three percent increase from Read and McMahon (1983). The total responses received increased from 106 to 158 and the total population increased from 228 to 323. Based on this small increase it is hard to establish whether the timing, method of distribution, subject of questionnaire, or a combination was the contributing factor.

Section B provides general background information on the respondent. Section C looks at the respondent's use of microcomputers and Section D the individual's computer education or training. Section E provides the respondent's opinions on computer instruction for financial management officers, curriculum to be covered and how that instruction should be presented. Section G provides a synopsis of the material covered in this chapter.

B. RESPONDENTS' BACKGROUND

Of the 158 respondents, 45% have primary MOS 3402, 3% 3404, 7% 3406, and 35% 3415 (Table II). Ten percent of the respondents have a primary MOS other than financial management, but have a secondary MOS of 3402 or 9644. Two respondents hold financial management billets, but do not have a primary or secondary financial management MOS. Of those respondents with a primary financial management MOS, 79%

have no secondary MOS or one other than financial management and 21% have a secondary financial management MOS.

Of the 158 respondents 3% are colonels, 11% lieutenant colonels, 16% majors, 29% captains, 32% first and second lieutenants and 9% are warrant officers.

Table II provides a comparison of MOS versus rank. The table reflects the primary and secondary MOS of each respondent by rank. The identification of the primary "other" MOS identifies those respondents whose primary MOS is other than financial management. The secondary MOS "other" indicates those respondents who either do not possess a secondary MOS or possess one other than financial management. The secondary MOS "other FM" indicates the respondent possesses a secondary financial management MOS. This category includes those officers with a primary financial management MOS and a secondary 9644.

Table III provides a look at the respondents' time in service and financial management billets versus rank. It also provides the number of months in the current financial management billet. Warrant officers, with 86.3%, have the highest percentage of time in financial management billets. Captains, lieutenants, and majors have the next highest, with 63.2%, 58.3%, and 57.7%, followed by colonels and lieutenant colonels with 44.6% and 41.1%.

Colonels, with 31 months, have the longest tours in their current financial management billet. They are

TABLE III

TIME IN SERVICE/FINANCIAL MANAGEMENT VERSUS RANK

AVERAGE TIME	W1-W4	01/02	03	04	05	06
YEARS IN THE MARINE CORPS	16.0	3.6	10.6	16.8	19.7	23.5
YEARS IN FINANCIAL MANAGEMENT BILLET	13.8	2.1	6.7	9.7	8.1	10.5
PERCENTAGE OF TIME IN FINANCIAL MANAGEMENT BILLETS	86.3	58.9	63.0	57.7	41.1	44.6
MONTHS IN CURRENT FINANCIAL MANAGEMENT BILLET	21.3	8.3	14.2	18.0	20.4	31.0

followed by warrant officers and lieutenant colonels with 21.3 and 20.4 months and majors, captains, and lieutenants with 18, 14.2, and 8.3 months respectively.

A comparison of Table III with corresponding like data in Read and McMahon (1983) reveals that for all ranks the percentage of time in financial management billets increased. A direct comparison between the two tables can be made, even though the populations are not the same. Read and McMahon (1983) received questionnaires only from MOS's 9644 and 3415, while the population in Table III includes MOS's 3402, 3404, 3406, 3415, and 9644. Therefore, for the comparison, information only on MOS's 3415 and 9644 is used.

Majors and captains with a 22% and 21% increase, showed the highest percentage increase in financial management billets. This was followed by lieutenants and colonels with 14% each and lieutenant colonels with 11%.

The months spent in current billet greatly changed depending on rank. For colonels, the number of months in current financial management billet increased from 11.8 to 31.0 months. Lieutenant colonels increased by one month. Lieutenants, captains and majors, however show decreases in the number of months in current financial management billet. Lieutenants had the greatest decrease from 15 to 7 months. Captains and majors followed with each reflecting 3 month decreases.

The comparison shows that financial management personnel are spending a higher percentage of time in financial management billets. It also identifies a higher turnover rate in captains and majors, but lieutenant colonels and colonels are staying longer. The high turnover rate is not applicable to lieutenants as they are primarily newly reported second lieutenants at their first duty station.

C. USE OF MICROCOMPUTERS

This section concentrates on the respondents' use of microcomputers, including which MOS's use microcomputers, what kind of microcomputers and which software packages the respondents use.

Table IV provides a comparison between the MOS's and microcomputer use. The MOS's include those respondents who have a primary or secondary MOS in that category. For example, the 74 3402 respondents include those respondents identified in Table II as 3402/other, 3402/other FM, and other/3402. The only exception is the 9644 MOS. As in Table II, these are respondents with a primary other than financial management and a secondary 9644.

Sixty-one percent of the respondents use microcomputers. Excluding the two "other" respondents, MOS's 3406, 3415 and 9644 had the highest percentage of respondents using microcomputers (81%, 75% and 70% respectively). MOS's 3402 and 3404 are the only MOS's where more respondents do not use

TABLE IV
RESPONDENTS' USE/NON USE OF COMPUTERS VERSUS MOS

	3402	3404	3406	3415	9644	OTHER	TOTAL
USE	35	2	9	42	7	2	97
NO USE	39	3	2	14	3	0	61
TOTAL	74	5	11	56	10	2	158

microcomputers. The 3404 respondents are second lieutenants assigned to disbursing billets.

Table V identifies microcomputers used versus rank. The 97 respondents who do use microcomputers, identified 153 types of microcomputers used at work. The highest percentage are IBMs (XT--23%, PC--22%, and AT--7%) or IBM compatible (Zenith 150--7%, Leading Edge--4%). The Zenith 120 (16%) is not IBM compatible. The IBM Telex 178 is a "dumb terminal" used only to retrieve information from a mainframe using on-line software packages.

The 21 microcomputers listed in the "other" category include Compaq Plus, Apple IIe, Kaypro, Macintosh, Atari, XTRON, and Televidio. Of the microcomputers used, 65% are IBMs or IBM compatible. Table V also shows that of the respondents who use microcomputers, colonels have the highest utilization rate, 100%, followed by lieutenant colonels with 78%. The next highest utilization rate of microcomputers is by warrant officers and captains with 67% and 61%, followed by majors and lieutenants with 56% and 54%.

TABLE V
USE OF MICROCOMPUTERS VERSUS RANK

COMPUTER TYPE	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
ZENITH 120	5	5	9	1	4	0	24
ZENITH 150	2	1	3	2	4	0	12
IBM PC	2	6	11	7	5	3	34
IBM XT	5	8	10	6	7	0	36
IBM AT	1	1	5	1	4	0	12
LEADING EDGE	1	1	1	1	1	1	6
IBM TELEX 178	0	8	0	0	0	0	8
OTHER	1	5	4	4	4	3	21
DO NOT USE MICROCOMPUTERS	5	23	18	11	4	0	61

Table VI focuses on the specific software packages used by respondents. Four major areas were surveyed: word processing, database, spreadsheets, and graphics. The respondents were also afforded the opportunity to identify "other" areas of use.

Looking specifically at word processing packages used, Wordstar with 43% is the most widely employed. No other word processing package comes close, as the next highest are Microsoft Word and Volkswriter with 7% each.

Dbase II/III with 63% is the most widely used database software package followed by Condor and PC Focus with 4.5% each.

TABLE VI

SOFTWARE PACKAGE	SOFTWARE TYPE VERSUS SOFTWARE PACKAGES IN USE			
	<u>WORD PROCESSING</u>	<u>DATABASE</u>	<u>SPREADSHEETS</u>	<u>GRAPHICS</u> <u>OTHER</u>
WORDSTAR	31			
EASYWRITER II	4			
MICROSOFT WORD	5			
WORD PERFECT	3			
VOLKSWRITER	5			
PEACHTEXT	4			
SYMPHONY	4		13	3
MISCELLANEOUS	15	19	10	17 18
DO NOT USE	33	39	36	64
DBASE II AND III		42		
CONDOR		3	1	
LOTUS 1 2 3			51	15
MULTIPLAN			3	
PC FOCUS		3		
GRAPH TALK				3
MICROSOFT CHART				3
HARVARD TRAINING PROJECT MANAGER				3
SIDEKICK				3

For spreadsheets, Lotus 123 with 66% is the most widely used software package, followed by Symphony and Multiplan with 17% and 4% respectively.

Graphics was the least used category. Sixty-four of the 97 (66%) respondents do not use this type of software. However, of the graphics packages used, Lotus 123 with 37% was the most widely used. This was followed by Symphony, GraphTalk and Microsoft Chart with 7% each.

In the "other" category, only Harvard Training Project Manager and Sidekick were identified by more than one respondent. The other responses in the miscellaneous category include software languages and local use programs.

Even though there is wide use of software packages among the various commands, each category has one dominant software package utilized: Wordstar--word processing, Dbase II/III--database, Lotus 123--spreadsheets and graphics. The author is unable to tell if these packages were purchased based solely on cost, ease of use, features available, or a combination of these factors.

D. RESPONDENTS' COMPUTER EDUCATION AND TRAINING

This section deals with the respondents' computer education and training. It identifies which officers have received computer education or training, what type of school they attended, the subjects covered, and whether these courses prepared them for their computer related responsibilities.

Of the 158 respondents, 50 (31.6%) stated they received no computer education or training (Table VII). This is education or training provided by the Marine Corps or sought out and paid for by the individual. Looking at the breakdown by rank, lieutenant colonels with 89% have received the highest percentage of education or training, followed by colonels and lieutenants with 75% and 74%, captains and majors are next with 70% and 64%, and warrant officers with 27%. While 27% of the warrant officers have received education or training, 67% use computers.

Table VII shows computer education and training versus rank. The respondents identified all education or training received, including on-the-job training (OJT). One hundred eight respondents identified 203 types of education and training. Undergraduate courses, identified by 54% of the respondents who received computer education, are the dominant means of education. The respondents who took courses either took them as a prerequisite for an unrelated degree received prior to joining the Marine Corps or to satisfy a perceived need. The next highest methods were courses offered by civilian corporations and other Marine Corps sponsored courses of instruction (24% and 23% respectively). Civilian courses were primarily taken at the Computer Dynamics Institute, Yourdon and Middlesex Research Corporation. Other Marine Corps education included the Disbursing and Supply Schools and command-sponsored programs.

TABLE VII
COMPUTER EDUCATION VERSUS RANK

	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
Computer Degree prior to Joining the Marine Corps	0	1	0	0	0	0	1
Computer Degree after Joining the Marine Corps	0	1	4	0	2	0	7
Practical Comp- trollership Course	0	6	7	3	2	0	18
SEP	0	0	2	5	4	1	12
Civilian	0	9	4	5	6	2	26
Professional Military Comp- trollership Course	0	0	5	4	2	0	11
Undergraduate School	2	28	15	5	7	1	58
Computer Science School	1	2	4	2	2	0	11
MC Other	2	14	3	3	3	0	25
Navy Other	0	2	0	0	1	0	3
High School	0	2	2	0	0	0	4
OJT	2	8	4	4	1	1	20
Other	0	0	2	2	2	1	7
None	11	13	14	9	2	1	50

This is followed by on-the-job training and the Practical Comptrollership Course (19% and 17%). The specifics of on-the-job training cannot be gleamed from the questionnaire.

Therefore no conclusions can be drawn on the training received. The Practical Comptrollership Course is offered semiannually at the Naval Postgraduate School, Monterey, California for two weeks. During this course, one hour of formal computer instruction is scheduled and a Kaypro can be checked out after hours for program instruction on the Prime Enhancement Program and budget execution (Melchar, 1986).

The one hour classroom lecture discusses:

financial management information systems to include MAGFARS and Prime systems as well as new systems under development, existing and potential problem areas, and other systems information relating to the financial community. (Marine Corps Liaison Office [MCLO], 1985, p. 4)

The 12 respondents who identified they received their education through the special education program did not receive a computer related degree. They all received degrees in financial management, but took computer courses at the Naval Postgraduate School.

Ten percent of the respondents attended the Professional Military Comptrollership School (PMCS) at Maxwell AFB, Montgomery, Alabama and courses at the Computer Sciences School (CSS) in Quantico, Virginia. PMCS is an eight week course providing approximately 327 hours of instruction depending on the availability of speakers and emphasis on particular topics. Of the 327 hours, 40 are scheduled for information management. The area objectives are:

To comprehend the concepts and principles associated with management information by examining and discussing contemporary theories, topics, terminology and problems

associated with information in today's environment. Class members learn about effective employment of computer resources used to generate much of the information used by financial and resource managers. (Professional Military Comptroller School [PMCS], 1985, p. 8)

The Computer Science School offers various courses. Semi-annually, it provides a two week Automatic Data Processing (ADP) Orientation Course designed for E-8's and above who do not possess an ADP related MOS. The course includes an introduction to computers, and one day each on spreadsheets, database, MS-DOS, and word processing, and mainframe database management. (Vicks, 1986)

The remaining courses identified are taken by 6% or less of the respondents. They include courses offered through Navy Regional Data Automation Centers (NARDAC), high school, General Services Administration (GSA), and Department of Defense Computer Institute (DODCI). The eight computer degrees identified are in Information Systems Management and Computer Science.

Table VIII identifies the courses of instruction taken by the respondents who have computer education or training. Introduction to Computers taken by 82% of the respondents is the highest area of study. This is followed by computer applications and programming (62% and 61% respectively). The next highest are personal computing (32%), peripheral devices (31%), systems development (30%), and computer management (26%). The computer architecture percentage is understandable as most computer responsibilities do not deal

TABLE VIII
COURSES OF INSTRUCTION TAKEN VERSUS RANK

COURSE OF INSTRUCTION	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
Introduction to Computers	3	30	26	14	13	3	89
Computer Management	1	5	11	5	4	2	28
Programming	3	27	14	10	10	2	66
Computer Applications	3	23	17	11	10	3	67
Computer Architecture	2	6	4	4	3	1	20
Personal Computing	1	11	10	5	7	1	35
Peripheral Devices	3	12	3	7	8	1	34
Systems Development	2	9	7	6	6	2	32
Other	1	5	2	1	1	0	10

with the mechanics of the computer itself, but rather input/output operations. The other category includes unique Marine Corps MOS related subjects.

Table VII took a look at the education and training received by respondents and Table VIII identified courses of instruction taken by the respondents. Table IX rates the education or training as to whether it prepared the respondents for their computer related responsibilities. The respondents rated their education or training based on a scale of strongly agree to strongly disagree. Ten courses or schools did not receive a rating for various reasons. As identified in Chapter III, some respondents identified

TABLE IX

EVALUATION OF COMPUTER EDUCATION

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Neither Agree Nor Disagree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>	<u>No Rate</u>
Computer Degree Prior to Joining the Marine Corps	0	0	1	0	0	0
Computer Degree After Joining the Marine Corps	2	2	1	0	0	2
Practical Comptrollership Course	2	3	7	1	3	2
Special Education Program	0	8	2	2	0	0
Courses Offered by Civilian Corporations	2	15	6	1	2	1
Professional Military Comptrollership Course	2	5	2	1	1	0
Undergraduate Courses	7	18	17	7	8	1
Computer Science School	1	5	3	1	1	0
Marine Corps Other	1	8	10	5	0	1
Navy Other	0	2	1	0	0	0
High School	0	2	0	0	1	1
OJT	0	13	6	1	0	1
Other	<u>1</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	18	85	57	19	16	10

training in question 3 which requested a listing of degrees earned. Since question 3 did not have a space for rating, there would not be one. If a respondent identified that they had a computer related degree in question 3, but did not identify and rate it in question 4, it shows up in the no rate column.

Looking at the ratings in Table IX, 9% strongly agreed, 41% agreed, 28% neither agreed nor disagreed, 9% disagreed, 8% strongly disagreed and 5% did not rate whether their education or training prepared the respondent for computer related responsibilities. Therefore, 50% of the courses were rated that they prepared the respondents for their computer related responsibilities.

Excluding the "no rates" for further analysis, the author tried to pinpoint the education or training that respondents said prepared them for their computer related responsibilities. Two categories, "Computer Degree after joining the Marine Corps" and "Other" with 80% and 83%, respectively, had the highest ratings.

Three schools had the most ratings in the neither agree/disagree to strongly disagree ratings. These are the PCC (69%), undergraduate courses (57%), and Marine Corps other (62%). The Marine Corps has little to no direct influence on undergraduate courses as those are courses offered at civilian institutions. The courses are taken because of a perceived need, but in reality the courses are

not designed for military applications and cover the general topic.

The Marine Corps does have direct control over the other two. The objective of the PCC is not to train financial managers in the specifics of computer responsibilities, but rather to provide general information on all facets of comptrollership to include, but not limited to, accounting, budgeting and internal review. The same is true of the Disbursing and Supply Schools which fall into the Marine Corps other category.

The other schools range from 55-66% in favor that the respondents said the schools prepared them for their computer related responsibilities.

E. COMPUTER INSTRUCTION

This section will identify what the respondents said about a need for computer training for financial management officers in the Marine Corps. If the respondent stated there should be training, this section identifies what curriculum should be covered and how that instruction should be presented. Conversely, if the respondent stated that the Marine Corps should not provide training, the reasons for not wanting it are identified.

Tables X and XI provide, by rank, whether the respondent feels financial management officers in the Marine Corps need computer training. Table X provides this information by whether the respondent uses or does not use computers and

TABLE X

EVALUATION OF THE NEED FOR COMPUTER TRAINING
(USE/DO NOT USE COMPUTERS)

	W1-W4	01/02	03	04	05	06	TOTAL
Strongly Agree	6/2	14/6	19/7	10/7	8/3	4/0	61/25
Agree	1/1	11/13	7/9	2/4	6/1	0/0	27/28
Neither Agree Nor Disagree	2/2	0/2	0/1	2/0	0/0	0/0	4/5
Disagree	1/0	1/2	1/1	0/0	0/0	0/0	3/3
Strongly Disagree	0/0	1/0	1/0	0/0	0/0	0/0	2/0
Total	10/5	27/23	28/18	14/11	14/4	4/0	97/61

TABLE XI

EVALUATION OF THE NEED FOR COMPUTER TRAINING
(EDUCATION/NO EDUCATION)

	W1-W4	01/02	03	04	05	06	TOTAL
Strongly Agree	3/5	16/4	21/5	11/6	9/2	3/1	63/23
Agree	1/1	19/5	11/5	4/2	7/0	0/0	42/13
Neither Agree Nor Disagree	0/4	1/1	0/1	1/1	0/0	0/0	2/7
Disagree	0/1	2/1	0/2	0/0	0/0	0/0	2/4
Strongly Disagree	0/0	0/1	0/1	0/0	0/0	0/0	0/2
Total	4/11	38/12	32/11	16/9	16/2	3/1	109/49

Table XI provides the same information and also identifies whether the respondent has any computer education.

Discounting whether or not they use computers or have a computer education or training, 54% of the respondents strongly agree, 35% agree, 6% neither agree nor disagree, 4% disagree and 1% strongly disagree that there is a need for computer training (Tables X and XI). Based on these figures, use/non use of computers and having some computer education does not matter. Eighty-nine percent of the respondents strongly agree or agree that computer training is necessary.

Looking at the 17 respondents whose ratings ranged from neither agree nor disagree to strongly disagree, nine use computers and 8 do not, which proves to be an insignificant factor. Only four (14%) have any computer training and 13 (76%) do not. This is a significant factor.

Table XII provides the respondents' comments why the Marine Corps should not provide computer training. All eight of the respondents who disagreed or strongly disagreed in Tables X and XI stated that on-the-job training (OJT) was sufficient. Three respondents stated that training was not required and that training could be obtained prior to joining the Marine Corps. One possible explanation of why the respondents checked "OJT is sufficient" is because 65% of the respondents who identified OJT in Table IX stated that they agreed that OJT prepared them for their computer

TABLE XII

REASONS MARINE CORPS SHOULD NOT PROVIDE
FORMAL COMPUTER TRAINING VERSUS RANK

	W1-W2	O1/O2	O3	O4	O5	O6	Total
OJT is Sufficient	1	4	3	0	0	0	8
Civilian Education is Better	0	0	0	0	0	0	0
Obtain Training Prior to Marine Corps	1	2	0	0	0	0	3
Not Required	0	2	1	0	0	0	3
Other	1	0	0	1	0	0	2

related responsibilities. The Marine Corps, however, cannot count on most of its financial management officers obtaining training prior to entry into the Marine Corps. At the same time those respondents who stated that computer training is not required for the job may be looking at their Marine Corps career rather myopically. With the consolidation of financial management MOS's into one, an individual could go from one duty station to another and not only change locations, but job specialties as well (for example, going from disbursing to budgeting). Along with this change may come the need to know something about computers.

Table XIII presents how training should be accomplished. The input for this table came from those respondents who felt financial management officers need computer training. A financial management course for entry level officers was identified by 82% of the respondents as a means to accomplish computer training. This is followed by OJT (56%), outside education (22%), PCC (20%), and expert-systems (6%). Note that outside education at 22% is the most widely used means of education identified in Table VI. "Other" methods were diverse except for command-sponsored programs.

TABLE XIII

ACCOMPLISHMENT OF COMPUTER TRAINING VERSUS RANK

	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
OJT	6	26	22	13	11	1	79
Outside Education	3	10	4	8	6	0	31
Financial Management Course	8	33	33	20	18	4	116
Practical Comptroller- ship Course	2	6	9	3	7	1	28
Expert Systems	1	2	1	2	3	0	9
Other	2	6	4	0	3	0	15

Table XIV shows the courses of instruction the respondents would like to see versus rank. Two courses were identified by 78% of the respondents: database management and spreadsheets. These were followed by management information systems (67%), graphics (57%), and word processing (50%). Programming (41%), hardware organization and structure (28%), acquisition policies (27%), and computer center operations (12%) were also identified.

TABLE XIV
COURSES OF INSTRUCTION REQUIRED VERSUS RANK

	W1-W4	O1/O2	O3	O4	O5	O6	TOTAL
Programming	9	20	14	8	7	0	58
Word Processing	7	25	20	10	6	3	71
Data Base Management	8	34	32	18	15	3	110
Hardware Organization and Structure	4	10	10	11	4	1	40
Management Information Systems	6	30	27	15	15	1	94
Computer Center Operations	3	6	2	5	1	0	17
Spreadsheets	6	31	35	21	14	4	111
Graphics	5	22	23	17	11	3	81
Acquisition Policies	2	12	10	8	5	1	38
Other	1	3	0	4	4	1	13

Duration of the training was not solicited from the respondents. However, a recommendation is made in Chapter IV. The questionnaire did solicit whether the respondents wanted a general overview or specific topics taught. Table XV identifies rank versus general/specific training. Six respondents ignored this question. Forty-seven percent of the respondents want a combination of both specific and general training, 33% general and 20% specific.

TABLE XV
GENERAL/SPECIFIC TRAINING VERSUS RANK

	W1-W2	01/02	03	04	05	06	TOTAL
Specific	3	9	6	4	3	2	27
General	3	13	15	7	6	0	44
Combination of both Specific and General	3	18	20	13	8	2	64
Total	9	40	41	24	17	4	135

Looking first at specific topics requested by the respondents, the overwhelming majority was word processing, database, spreadsheets and graphics. Few specific software packages were mentioned by name, but the most reoccurring theme was to standardize packages' use. Programming came in second and other topics were provided, but none consistently. In general topics, word processing, spreadsheets,

graphics and database were mentioned, but not as strongly as they were noted under the specific category. Management information systems, computer architecture, general use/operations and acquisitions were the major topics mentioned other than the four basics.

F. SUMMARY

This chapter has provided a look at the results presented in the questionnaire distributed to financial management officers in the Marine Corps. It has looked at the respondent's background, computer education and training, and the type of instruction the respondent would like to see established. Chapter IV provides an analysis of this data and makes recommendations for future actions or further study.

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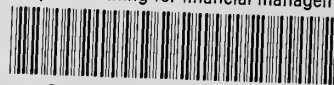
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